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CR-142308

A STUDY OF THE APPLICATION OF  
SKYLAB EREP DATA TO AGRICULTURE IN THE  
MISSISSIPPI DELTA ALLUVIAL PLAINS REGION

EREP Investigation No. 399

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July 24, 1974 - March 1, 1975

Contract No.: NAS9-13363

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Semi-Annual Report

(E75-10180) A STUDY OF THE APPLICATION OF  
SKYLAB EREP DATA TO AGRICULTURE IN THE  
MISSISSIPPI DELTA ALLUVIAL PLAINS REGION  
Semiannual Report, 24 Jul. 1974 - 1 Mar.  
1975 (Mississippi State Univ.). 5 p HC \$3.25 G3/43 00180

N75-20783

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## PREFACE

The object of this investigation is to explore the possible uses of Skylab EREP data in making agriculturally oriented decisions. The area of concern for this study is in the Mississippi Delta region, near Stoneville, Mississippi. Skylab MSS data will be analyzed through computerized pattern recognition programs by ERL at NASA/MTF. This derived information will then be formatted in a style to be agreed upon as being the clearest presentation of the most useful data, probably a color coded map and corresponding statistics. Results of a similar study, utilizing ERTS satellite data, will be used to optimize the data format.

MSU researchers will then identify possible low and intermediate level users and acquaint them with the Skylab data product. Through interviews it will be determined what are the possible uses of this data, what time table of data delivery, what particular information is most useful to them, what format would be optimum for presentation of this information, and what changes (i.e. additional information) could make the data of more value to them. Using this information, and evaluation of Skylab EREP data's usefulness in making agricultural decisions will be made.

## INTRODUCTION

This report covers the work performed under EREP Investigation No. 399 up to March 1, 1975.

Since the last report the work has been at a low level while awaiting the arrival of processed data. The exact nature of the data to be obtained has been detailed and the timetable for all remaining work has been established. This has previously been impossible due to lack of information on the type and quality of S-192 data obtainable and the uncertainty of delivery date.

A two month extension of the contract period (at no additional cost) has been requested and approved. The final date for this investigation is now August 31, 1975.

## Status

During this reporting period S-192 data has been received (by the ERL at NSTL) for two passes over the investigation site. The data is from the skylab passes listed below:

SL-3	pass 4,	track 62,	5 August 1973,	EREP 15
SL-4	pass 35,	track 62,	21 August 1974,	EREP 37.

The data from SL-3 was almost entirely obscured by clouds so the decision was made to process the data from SL-4. Since the data from SL-4 was taken during January it will be difficult to attain the stated objective of this research, that is to attempt crop identification and yield

prediction; however, every effort is being made to maintain the integrity of this investigation.

The S-192 data has had the necessary reformatting to allow training sample selection. From this first look at the data it appears that the best course open to us is to emphasize the classification of winter wheat, the only crop observable during the winter season. An attempt will be made to classify winter wheat versus all else. If successful, this will be compared against county records from the area to ascertain accuracy of classification and attempt a yield prediction based on the S-192 data. From the appearance of the data it is questionable whether even this limited crop identification will be of significant accuracy. A further complication is that our ground truth gathering operation had ended in late fall of 1973, thus no accurate ground truth is available for January 1974. The investigation was originally anticipated to concern itself with data taken during the summer or fall of 1973.

#### Outlook

Presently, it is expected that the ERL at NSTL will be able to deliver the classified data to the MSU researchers by 31 March 1975. If this delivery date is met there should be nothing to prevent this investigation from reaching its conclusion by the final contract date.